

REMARKS

Enclosed is a petition for an extension of time and the appropriate fee.

Drawings

The drawings were rejected to under 37 C.F.R. § 1.83(a) which states, in pertinent part, that the drawings "must show every feature of the invention specified in the claims."

Substitute drawings for Figs. 2 and 3 are submitted herewith. Figs. 2 and 3 are revised to include reference number 200 corresponding to the variable reflectance mirror 200 (Specification page 6 ll. 21-22 and page 8 ll. 27-28). Fig. 2 is revised to include the reference numbers 229 and 230 corresponding to coatings on the outer panels (Specification at page 9 ll. 6-22). Fig. 1 is unrevised but is included on the same page as Fig. 2.

Figure 1 was objected to for appearing to show, for each mirror, a "rim outer periphery." Applicant respectfully submits that Figure 1 does not show a rim outer periphery for each mirror, rather it shows the cowling frames for retaining and supporting each mirror in a typical vehicular installation, wherein each mirror itself is rimless as shown in Figs. 2 and 3 (Specification page 6 ll. 13-16). Although Figs. 2 and 3 show only one embodiment of the rimless mirror of the present invention, the characteristic feature of the rimless embodiment, as disclosed in the specification, is the lack of an applied rimming material.

The claimed element "a first photo sensor" in Claims 19 and 25 is the rear light detecting sensor 304 shown in Fig. 4. The Application discloses that the rear light detecting sensor 304 is

the photo sensor that is used to determine the amount of dimming required to compensate for the glare causing effect of the sensed rear light (Specification page 13 ll. 19-21).

The claimed element "a second photo sensor" in Claim 26 is the ambient light detecting sensor 302 in Fig. 4. The Application discloses that the ambient light detecting sensor 302 is the photo sensor that is used to determine when to activate or deactivate the reflection dimming activity of the control circuit (Specification page 13 ll. 12-15).

The drawings were further objected to for failing to show an "optically enhancing coating" from Claim 33, an "abrasion resistant coating" in Claims 34-35, and a "hydrophilic coating" in Claims 36-37. These coatings are microscopically small in thickness compared with the thickness of the coated panel, and the coating covers the panel evenly so as to appear to be indistinguishable from the lines dividing the coated panels from the adjacent bonded materials. The specification has been amended to include reference numbers (229, 230) and the drawings have been revised to correspond to the written description of these coatings and their locations.

Applicant respectfully requests that Figs. 2 and 3 be replaced by the substitute drawings included herewith, and that this objection be withdrawn.

Rejections Under 35 U.S.C. § 102

The Office Action rejected Claims 1-4, 6, 8-9, 11-14, 21, 24, 28, 29, 38-44, 47-52 and 57 under 35 U.S.C. § 102(b) as being anticipated by *Weber et al* ("*Weber*" U.S. Patent No. 5,686,979).

Applicant respectfully traverses this rejection in its entirety.

The present invention teaches a variable reflectance vehicle mirror device for variably attenuating light passing to and reflected from a static reflecting layer 214 which is a highly reflective metallic surface. The static reflecting layer prevents light transmission through the device while enhancing the reflectivity of the device.

As can be appreciated, while the present invention addresses the problem of glare, particularly in night driving, in a highly efficient and economical manner, the prime purpose of a mirror and particularly a rearview mirror in a vehicle is to provide a clear and bright image to the driver. Thus, the present improvement must not detract from the first function required for safety reasons of having an effective reflectance mirror under normal driving conditions.

The present invention further teaches a sophisticated system with photo detection sensors to measure both ambient light as well as the intensity of light impinging on the variable reflectance mirror from a point orthogonal to the surface of the variable reflectance mirror, in order to adjust the reflectivity (Specification page 5 ll. 10-15).

Weber teaches a switchable window device which can be dynamically switched between a darkening or semi-reflecting state and a transmitting state (*Weber* col. 1 ll. 6-8). The switchable window permits electronic control of window transmission for purposes of privacy, light control and energy control (*Weber* col. 3 ll. 45-48). *Weber* does not teach a static highly reflective element and instead teaches a darkening element, including reflective polarizers, in a selectively dynamic environment. With this construction, the structure disclosed by *Weber* is roughly 25 to 40% transmissive (*Weber* col. 8 ll. 50-54). However, this would yield a very lossy reflection compared with a structure of the present invention which has a transmission of roughly 92% resulting in a maximal reflectivity of up to 94% (Specification page 11 ll. 13-19). The

present invention is used as a mirror, and requires a higher amount of reflectivity to operate acceptably in the intended environment. Although *Weber* teaches a structure with some reflectivity, the structure as claimed is different in construction, function and result, and would not be suitable for the same application of the present invention. In fact, Weber actually teaches away from mirroring as follows on col. 10 ll. 31-35:

"The absorptive polarizer 88, therefore, absorbs indoor light which would otherwise be reflected back into the room by reflective polarizer 84, thereby preventing an undesirable mirrored appearance." (underline added)

Further, *Weber* teaches special reflective polarizers, comprising from 200 to 1000 layer pairs, to provide gradient refractive indexing (*Weber* col. 6 ll. 1-44) while the present invention teaches ordinary polarizers positioned with their alignment crossed (Specification page 8 ll. 22-23). Ordinary polarizers are well known to be non-reflective and absorptive.

The Office Action indicates that Weber anticipates the present invention by teaching a "reflector placed behind the LCD assembly" (*Weber* col. 1 ll. 52-56). Applicant respectfully disagrees. *Weber* discloses transmissive embodiments as optical switches that would not operate as intended if an opaque reflector were placed adjacent to the LCD assembly, so there would be no motivation to combine in order to teach the reflector of the present invention. *Weber* merely mentions a reflector in their Background of the Invention in terms of defining how optical displays are classified based upon their source of illumination (*Weber* col. 1 ll. 50-51). *Weber* does not teach the aluminum reflector as operable with their invention, and to combine the reflector with Weber in anticipation would be an aggregation of non-interoperable components analogous to creating a non-functional machine out of disparate components.

Claims 1, 22, 30, and 42-44 have been amended to include the feature of "a metallic reflective layer . . ." to clearly distinguish over *Weber* and is supported by the Specification on page 8 ll. 22-23. Although an enhanced aluminum material is the preferred embodiment, it is understood that metallic refers to the enhanced aluminum material or other similar highly reflective material that can contribute to a mirror with a reflectance of greater than 90%. In contrast, *Weber* teaches polymeric layers as a "reflecting polarizer" (*Weber* col. 5 ll. 59-62 and col. 6 ll. 16-18 and 26-28). The benefit of using a metallic reflective layer is to provide a substantially higher reflectivity than what is achievable by using a polymeric layer. The remaining claims in this rejection depend from and further limit the amended independent claims.

Since *Weber* does not teach the claimed metallic reflective layer or the use of ordinary polarizers, thus claimed elements are not taught or suggested in the reference. In order to be an anticipating reference under 35 U.S.C. § 102, all claimed elements must be disclosed in the reference.

Rejections Under 35 U.S.C. § 103

As the Examiner is aware, the use of liquid crystal cells that can change the twist angle and in turn the polarization of the light passing through the cell are known as shown by the references in the optical field. The present invention is directed to a specific utilization in the environment of mirrors that can be used in a vehicle and addresses in an economical manner problems associated with glare. Thus, it is the combination and placement of various optical features that interact with the incident light and a control circuit to regulate the reflectivity of the mirror. The mirror still must perform as expected by the drivers for safety reasons. While the

optical principles are known, it is the particular utilization and arrangement that is believed to distinguish over the prior art in a relatively crowded field.

Thus when differences that may appear technologically minor nonetheless have a practical impact, particularly in a crowded field, the decision-maker must consider the obviousness of the new structure in this light.

Continental Can Co. USA Inc. v. Monsanto Co.,
20 USPQ 2d 1746, 1752 (Fed Cir. 1991).

The Office Action rejected Claims 7, 10, 15-18 and 53-56 under 35 U.S.C. § 103(a) as unpatentable over *Weber* stating that specific features are well known in the art.

Most if not all inventions arise from a combination of old elements . . . Thus, every element of a claimed invention may often be found in the prior art . . . However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention . . . Rather, to establish obviousness based on a combination of elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant . . . Even when obviousness is based on a single reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference . . . The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved . . .

In re Kotzab, 55 USPQ2d, 1313 (Fed. Cir. 2000)

Applicant respectfully traverses this rejection in its entirety.

Claims 1, 22, 30, and 42-44 have been amended to include the feature "a metallic reflective layer . . ." of high reflectivity to clearly distinguish over *Weber*. The remaining claims in this rejection depend from and further limit the amended independent claims.

Claim 7 has been amended to include the feature "introduced by rubbing" to clearly distinguish over *Weber* and is supported by the specification on page 7 ll. 20-24.

Claim 10 recites the feature of spacers to provide a constant thickness of the space between the front and rear transparent plates. This feature depends indirectly from the independent Claim 1 and is therefore believed to be patentably distinct.

Claims 15-18 and 53-56 recite the features related to the voltage regulator and stacked IC. Regarding Claims 15-16 and 53-54, *Weber* discloses use in an automobile, but does not disclose use in the diverse electrical environments such as 6 - 40 Vdc claimed in the present invention. Regarding Claims 17-18 and 55-56, *Weber* does not disclose the packaging of a control circuit, nor an oscillator formed within the package. Although it is desirable to drive a liquid crystal device using an alternating signal, some applications do not use oscillators, and packaging may vary significantly from the compact stacked IC as claimed.

Claim 18 was amended to correct a typographical error.

The Office Action rejected Claims 5, 15-17 and 53-55 under 35 U.S.C. § 103(a) as unpatentable over *Weber* in view of *Baughman et al.* ("*Baughman*" U.S. Patent No. 5,111,629).

Baughman is drawn to a transmissive application of a thermal window and requires thermal barriers that are either evacuated or filled with an inert gas (*Baughman* col. 4 ll. 17-32) to provide a combination of a window shade and heating insulating window. As discussed above, the present invention is drawn to a variable reflectivity mirror, not a transmissive embodiment, and the tint or coloration features disclosed by *Baughman* actually teach away from

the application of *Baughman* in a reflective environment. The voltage is actually taken from the AC household line and is not applicable to the *Weber* device.

It is apparent that hindsight is required from our present invention to try and apply the *Baughman* features to the *Weber* disclosure.

Applicant respectfully requests this rejection be withdrawn.

The Office Action rejected Claims 19-20 and 25-27 under 35 U.S.C. § 103(a) as unpatentable over *Weber* in view of *Gahan* (U.S. Patent No. 4,799,768) and *Ohno et al.* ("*Ohno*" U.S. Patent No. 5,469,296).

The *Gahan* reference teaches a photodiode having a band pass filter that would prohibit transmission of ultraviolet wavelengths. Basically, this reference sought to accommodate the spectral response of the photo detector to make them closer to the response of the human eye. See col. 4 ll. 2-13. The reference does not teach or suggest where the detectors for the forward and rear light are to be arranged and they are only shown schematically since the primary teaching is that of the particular band pass filter.

Gahan is drawn to a rearview mirror that includes a filtered light detector and an electrochromic (EC) cell (*Gahan* col. 2 line 66 to col. 3 line 17). Applicant submits that the filtering of the light to the detector and the highly specific control circuit parameters for sensor filtering disclosed in *Gahan* are not relevant to the present invention as claimed, and the electrochromic element is not equivalent to an STN liquid crystal cell.

Ohno is drawn to a control device for an antiglare mirror which emphasizes a control device that operates a "gel type electrochromic medium" (*Ohno* col. 4 ll. 38-63). *Ohno* describes a control element that is singular in function compared with the control system of the present invention that utilizes the interaction between an oscillator driver, sensor voltage and current control in order to supply more regulated control current to the variable device.

Both of these references use a variable reflective element as an electrochromic (EC) cell. As set forth in the *Ohno* reference, there is a teaching of either a gel type EC cell or a thin film type EC cell where applied voltage basically colors the EC cell. As previously indicated, the *Weber et al.* reference does not teach a reflective mirror and certainly does not teach an EC cell. Thus, neither the *Ohno* nor the *Gahan* references can address the deficiencies in the *Weber* reference, and it is apparent that they were only collected in hindsight from the teachings of the present invention.

The Office Action rejected Claims 30-34 under 35 U.S.C. § 103(a) as unpatentable over *Weber* in view of *Iwashita et al.* ("*Iwashita*" U.S. Patent No. 4,715,686).

Iwashita is drawn to various attributes of an anti-reflective coating as applied to a glass plate of a liquid crystal display. *Iwashita* does not disclose an application to a transmissive embodiment, only reflective and hence may not properly be combined with *Weber* as discussed. Even if *Iwashita* and *Weber* are hypothetically combined, they still do not teach all the elements of the claimed invention considering an inclusion of an irregular reflecting plate that will poorly reflect when compared with the highly reflective surface of the present invention (*Iwashita* col. 3 ll. 46-57).

The Office Action rejected Claim 35 under 35 U.S.C. § 103(a) as unpatentable over *Weber* in view of *Iwashita* as applied to Claim 30, in further view of *Kushibiki et al.* ("*Kushibiki*" U.S. Patent No. 6,376,695) .

Kushibiki is drawn to a very particular type of organosilicon-modified charge transporting compound (*Kushibiki* col. 2 ll. 51-65) and does not cure the deficiencies of *Weber* and *Iwashita*.

The Office Action rejected Claim 36 under 35 U.S.C. § 103(a) as unpatentable over *Weber* in view of *Iwashita* as applied to Claim 30, in further view of *Ando et al.* ("*Ando*" U.S. Patent No. 5,110,637) .

Ando is drawn to an amorphous oxide film to provide increased durability (*Ando* col. 1 ll. 5-8). The formulation of the Zirconia and Silicon dioxide layers is not disclosed in *Ando* in reference to use as a hydrophilic layer as in the present invention (Specification page 9 ll. 15-18). *Ando* is not related to the present invention, and hence may not be properly combined with *Weber* and *Iwashita*.

The Office Action rejected Claim 37 under 35 U.S.C. § 103(a) as unpatentable over *Weber* in view of *Iwashita* as applied to Claim 30, in further view of *Ohtsu et al.* ("*Ohtsu*" U.S. Patent No. 5,976,511) .

Ohtsu is drawn to an ultraviolet ray absorbing composition that is implemented as a thin-film (*Ohtsu* col. 10 ll. 3-5) and not included as an additive chemical ultraviolet ray absorber in the cell plate substrates as in the present invention (Specification page 9 ll. 23-25).

The Office Action rejected Claims 22-23 and 45-46 under 35 U.S.C. § 103(a) as unpatentable over *Weber* as applied to Claims 1 and 44, in view of *Hirano et al.* ("*Hirano*" Partial translation of PCT Publication No. WO 9946211 A1).

Hirano is only drawn to a method for cutting a liquid crystal glass substrate into a curved shape (*Hirano* page 1 ll. 33-35). The present claims define this feature for finishing the edges of the device in combination with the other features that are neither disclosed nor suggested in the references of record.

The newly drafted Claims 58-63 do not add any new matter and provide an alternative definition of the present invention. Claim 58 defines the relationship with a plastic transparent polymer front panel and the specific relationships of the polarizing filters and the metallic reflective material on the rear panel. The control circuit is also further defined in Claims 61-62 and the ability of our vehicle mirror to provide a high contrast ratio is defined in new Claim 63.

It is believed that these new claims, along with the amended claims, provide allowable subject, and an early notification of the same is requested.

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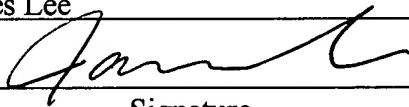
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If the Examiner believes that a telephone interview will help further the prosecution of this case, he is respectfully requested to contact the undersigned attorney at the listed telephone number.

I hereby certify that this document and fee is being deposited on July 17, 2003 with the U.S. Postal Service as first class mail under 37 C.F.R. §1.8 and is addressed to Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

by: James Lee



Signature

Date of Signature: July 17, 2003

Respectfully submitted,

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